

**REMARKS/ARGUMENTS**

**1.) Specification Amendments**

The title has been amended to recite a title more descriptive of the claimed invention. Approval of the amended title is respectfully requested.

**2.) Drawing Amendments**

Ten (10) replacement sheets providing formal drawings are enclosed herewith.

A "Prior Art" label has been added to FIGS. 1-7, which are discussed in the Background section of the specification.

FIG. 9 has been amended to correct various errors. An Annotated Sheet Showing Changes is enclosed herewith. As discussed on page 12, lines 11-28 of the specification, in the embodiment illustrated in FIG. 9, there is no cyclic prefix (CP) in the signal immediately following the inverse fast Fourier transform (IFFT). FIG. 9 erroneously showed a CP with each symbol exiting the IFFT. These CPs have been deleted in the amended figure to bring it into agreement with the specification text. Additionally, the specification describes that each antenna path adds a CP to the symbol to be transmitted. (Page 12, lines 23-28). The CP may be different for each antenna path; therefore, FIG. 9 has been amended to show cyclic prefixes CP<sub>1</sub>, CP<sub>2</sub>, and CP<sub>M</sub> being added in the antenna paths. Likewise, the cyclic prefixes in the received signal in the receiver have been amended to show CP<sub>1</sub>, CP<sub>2</sub>, and CP<sub>M</sub>.

Approval of amended FIGS. 1-7 and 9 is respectfully requested.

**3.) Claim Amendments**

The Applicant has amended claim 1; claims 4, 5, 7, 10, and 11 have been canceled; and claim 27 has been added. Accordingly, claims 1-3, 6, 8-9, and 12-27 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

#### 4.) Claim Rejections – 35 U.S.C. § 103(a)

In paragraph 1 of the Office Action, the Examiner rejected claims 1, 4-6 and 9-11 under 35 U.S.C. § 103(a) as being unpatentable over Wallace, et al. (US 6,473,467) in view of Kumar (US 6,005,894). The Applicant has amended the claims to better distinguish the claimed invention from Wallace and Kumar. The Examiner's consideration of the amended claims is respectfully requested.

The examiner seems to have interpreted claim 1 so that the phrase "a predetermined number of positions" is the same for each antenna path, and thus the same cyclic delay is used on each path. However, if this was the case, the system would not have any artificially induced frequency selectivity, and hence no delay diversity. In the claimed invention, the samples are shifted either a different number of positions or a different direction in at least two of the antenna paths. In the embodiment described in the specification, the shifting is different in all of the paths. Therefore, claim 1 has been amended to clarify that the samples of the signal are shifted a predetermined direction and number of positions, wherein the predetermined direction and/or number of positions are different for at least two of the antenna paths.

In the Examiner's indication of the allowance of claims 12-26, he stated that the specific description of the shifting operation on antenna paths 1 and 2 was the basis of the allowance. Since claim 1 now recites that the shifting operation is different on at least two of the antenna paths, the allowance of amended claim 1 is respectfully requested.

The examiner also seems to refer to "Guard interval" and "Cyclic Prefix" as being very different. OFDM designers and researchers frequently use the terms guard interval and cyclic prefix interchangeably, and the Applicant has also used the terms interchangeably in the application (see page 1, lines 20-22). However, strictly speaking, the term guard interval is somewhat broader than cyclic prefix as it could also be used to indicate a silent gap as a guard interval. However, in OFDM systems, it is the cyclic prefix design that ensures orthogonality between the subcarriers, so as long as the delay spread has a duration shorter than the cyclic prefix.

The claimed invention uses different cyclic shifted versions of an OFDM (time domain) signal for each antenna path and subsequently inserts a cyclic prefix.

Therefore, claim 1 has also been amended to clarify that in each antenna path, a number of samples from the beginning or the end of the signal are included in a cyclic prefix, and the signal and the cyclic prefix are then transmitted from each of the plurality of antenna paths. These features are not taught or suggested by Wallace or Kumar. Therefore, the allowance of amended claim 1 is respectfully requested.

Claims 4, 5, 10, and 11 have been canceled because their limitations have been recited in amended claim 1.

Claims 6 and 9 depend from amended claim 1 and recite further limitations in combination with the novel elements of claim 1. Therefore, the allowance of claims 6 and 9 is respectfully requested.

**5.) Allowable Subject Matter**

In paragraph 2 of the Office Action, the Examiner objected to claims 2-3 and 7-8 as being dependent on a rejected base claim, but stated they would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. The Applicant respectfully requests to defer rewriting these claims until the Examiner considers the allowability of amended base claim 1.

The Applicant gratefully acknowledges the allowance of claims 12-26.

**6.) New Claim**

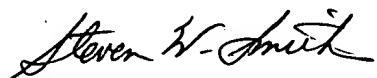
New claim 27 recites a method that includes shifting the samples of the signal a predetermined direction and number of positions in each antenna path, wherein the predetermined direction and/or number of positions are different for each of the antenna paths. The Applicant contends that new claim 27 is allowable for the reasons discussed above for claim 1 and allowed claims 12-26. Therefore, the allowance of claim 27 is respectfully requested.

**CONCLUSION**

In view of the foregoing remarks, the Applicant believes all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1-3, 6, 8-9, and 12-27.

The Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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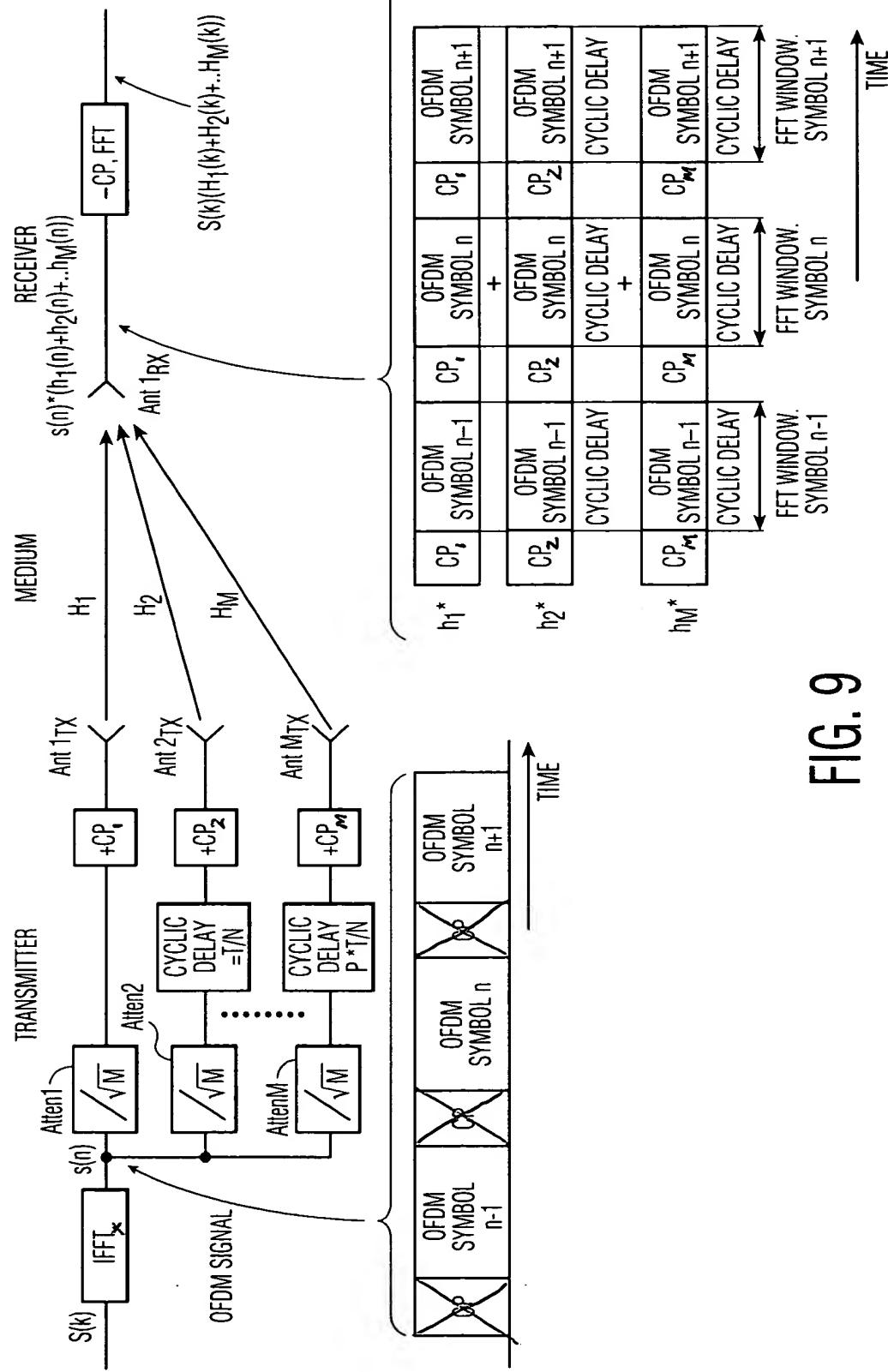


FIG. 9